

REMARKS/ARGUMENTS

Claims 1-20 are present in this application. By this Amendment, the specification and claims 9 and 16 have been amended. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

With regard to the objection to the drawings, formal drawings are being filed herewith, and Figure 1 has been designated by a "Prior Art" legend. Withdrawal of the objection is requested.

With regard to the objection to the disclosure, the website reference has been deleted.

Claims 9-12 and 16 were rejected under 35 U.S.C. §112, second paragraph. Claim 9 has been amended as suggested in the Office Action, and claim 16 has been amended to depend from claim 15. Applicant respectfully submits that the claims now more clearly satisfy the requirements of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection is requested.

Claims 1-15 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 4,623,458 to Hakola. Additionally, claims 1-15 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 4,174,275 to Martin. These rejections are respectfully traversed.

It is well settled that anticipation requires the disclosure in a single prior art reference of each element of each claim under consideration. See, for example, *W.L. Gore & Assocs. v. Garlock, Inc.*, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). With reference to the Office Action, the Examiner contends that the Hakola patent discloses "a cylindrical bulb housing (7)" that includes "a vortex destroyer having a plurality of V-shaped fins (43)" Applicant respectfully submits, however, that this is a mischaracterization of the Hakola patent.

The Hakola patent describes a quick release apparatus to facilitate replacement of a cyclone apex. Aside from the quick release split clamp ring 20 used to attach the apex 7 to the bottom flange 66 of the cone 1A, the Hakola structure generally functions in a conventional manner. Nowhere does Hakola even remotely disclose a vortex destroyer as part of a bulb housing coupled with a vortex chamber, which as defined in claim 1 serves to contain the fluid vortex to the vortex chamber. By containing the fluid vortex to the vortex chamber, the vortex destroyer allows the bulb to contain separated material without the need for underflow of heavy material. This is advantageous in that it enables the separated material to remain isolated from additional plumbing or storage components and therefore limits contamination items and/or special handling requirements. Although the Office Action references that Hakola teaches a "vortex destroyer," the Office Action does not provide a reference numeral nor refer to any section in the Hakola patent that discloses such subject matter.

Additionally, the Office Action's reference to "V-shaped fins (43)" in Hakola is entirely misplaced. As shown in Figures 10 and 11 in the Hakola patent, reference "43" is rather a weep hole provided adjacent the apex orifice portion to enable a small amount of water or other liquid in the slurry to slowly leak out when abrasion has worn the wall thickness adjacent the apex orifice 16, thereby alerting an operator that it is time to replace the apex 7. See column 6, lines 40-50. With continued reference to Figure 10 and with reference to Figure 5A, it is possible that the Examiner is referring to the eliminated material between the plurality of spaced ribs 36. These eliminated areas, however, are formed on the exterior of the apex 7 and could not possibly perform any vortex destroying function. In fact, Hakola describes that the elimination of material between the ribs 36 reduces the amount of neoprene, urethane or rubber material needed for the smaller diameter apex orifice portion of apex 7 and also reduces the thickness but adds to

the rigidity of the structure enough that an adjustable metal band 37 (Fig. 7) can be installed around the ribbed portion of the apex 7. See column 6, lines 16-25.

Since at least this subject matter is lacking in the Hakola patent, Applicant respectfully submits that the rejection of claim 1 is misplaced.

Independent claim 9 defines related structure including a vortex destroyer disposed in the bulb housing adjacent the conical section apex. Additionally, independent claim 14 defines a vortex destroyer disposed within a bulb housing adjacent a vortex outlet of a vortex chamber, wherein the vortex destroyer is configured for containing a fluid vortex to the vortex chamber. As noted, this structure is lacking in the Hakola patent, and with reference to the comments above, Applicant submits that the rejection of these claims is also misplaced.

The Martin patent describes a cyclone apparatus including a plurality of sectors formed of a resilient material mounted below the apex. In operation, the discharging underflow material deflects the sectors downwardly and controls the underflow to maintain its density substantially constant irrespective of changes in the density of the slurry supplied to the inlet. With reference to Figures 1 and 3, a control means 16 includes a resilient disk 22 having a plurality of integral sectors 17. With reference to Figures 5-7, when the sectors 17 are relaxed, they are in a common plane, and when the sectors are deflected downwardly, an effective cross-sectional flow area is provided for discharge of underflow, the size of which is dependent upon the extent of deflection. See, e.g., column 3, lines 19-44.

The Office Action contends that this control means anticipates the claimed "vortex destroyer" and references "V-shaped fins (17, 18) disposed adjacent the conical section apex (34)." The Office Action further contends that apex 12 is a "cylindrical bulb housing" that defines "a settling chamber beneath the vortex destroyer (16)."

Claim 1 defines a bulb housing defining a settling chamber beneath the vortex destroyer that collects solid particles. Since the control means 16 in the Martin patent is the outlet through which the underflow slurry is discharged, even assuming the control means 16 could somehow be characterized as the “vortex destroyer” of the claimed invention, the apex 12 (referred to as “cylindrical bulb housing (12)”) could not possibly define a settling chamber beneath a vortex destroyer. For this reason alone, Applicant respectfully submits that the rejection of claim 1 is misplaced.

Moreover, the control means 16 in the Martin patent does not in any manner perform a vortex destroying function. Indeed, as discussed above, the vortex destroyer, as defined in claim 1, contains the fluid vortex to the vortex chamber. As such, the settling chamber beneath the vortex destroyer retains separated material without underflow of heavy material. Without even remotely corresponding structure, no such advantage is achieved with the control means 16 in the Martin patent. For this reason also, Applicant submits that the rejection of claim 1 is misplaced.

Independent claim 9 defines related subject matter including a vortex destroyer disposed in the bulb housing adjacent the conical section apex, and a settling chamber defined by the bulb housing and beneath the vortex destroyer. Independent claim 14 defines a vortex destroyer disposed within a bulb housing adjacent a vortex outlet of a vortex chamber, where the vortex destroyer is configured for containing a fluid vortex to the vortex chamber. No corresponding structure is disclosed in the Martin patent.

With regard to the dependent claims, Applicant submits that these claims are allowable at least by virtue of their dependency on an allowable independent claim.

Reconsideration and withdrawal of the rejections are respectfully requested.

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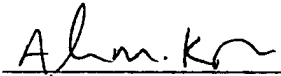
In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

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